

**AN EVALUATION OF THE NEED FOR SPECIFIC MANPOWER AUTHORIZATIONS  
FOR UNITED STATES AIR FORCE FIRE DEPARTMENTS PROVIDING  
EMERGENCY MEDICAL SERVICES**

ADVANCED LEADERSHIP ISSUES IN EMERGENCY MEDICAL SERVICES

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## **ABSTRACT**

The United States Air Force (USAF) has specified that all fire departments must provide emergency medical training for firefighters. Fire chiefs are further required to designate and train firefighters to the Emergency Medical Technician (EMT) level. The United States Air Forces Europe (USAFE) goes further and requires each main operating base to maintain a level of 20 firefighters certified as EMTs. However, Air Force manpower documents don't provide for emergency medical service (EMS) in the calculations for determining overall fire department manpower authorizations. The purpose of this paper was to identify the need for the inclusion of EMS in the workload factors used to determine manpower authorizations in USAF fire departments.

The methodology used to look at these requirements involved a literature review of the pertinent materials contained in the National Fire Academy's Learning Resource Center, documents contained in the Royal Air Force Mildenhall Fire Department reference library, and information located on the Internet in an evaluative research effort to answer the following questions:

1. How is manpower earned for US Air Force fire departments?
2. What manpower authorizations do medical agencies receive for EMS response?
3. What training requirements must be met by firefighters who provide EMS?

The results revealed there is no data to support an increase in manning at RAF Mildenhall. Data does show that EMS is migrating into the fire protection arena, and firefighters are spending more time in EMS functions than they are in fire fighting operations, but fire fighting remains the primary responsibility. This is compelling fire chiefs to develop risk management plans and procedures to deal with simultaneous fire

and EMS emergencies. The recommendation provided was that fire chiefs should continue to challenge the decision not to include EMS response in the manpower standard.

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## INTRODUCTION

Firefighting is a dangerous profession. However, today's fire service is much more than a "firefighting" profession. Firefighters not only fight structural and aircraft fires, but they also perform rescue from hazardous locations; confined spaces, water, high-angle, and below-grade. They are also the leaders in combating hazardous material and weapons of mass destruction incidents, responsible for overall command and direction of emergency operations. And of course there is the increasing responsibility for emergency medical service (EMS). As a reflection of our society, the US Air Force has also taken on many other roles in fire protection beyond firefighting, to include EMS. The level of EMS provided varies from department to department, but overall EMS is a function of the US Air Force fire service in the same manner it is in the civilian sector.

The problem is US Air Force fire departments don't receive manpower authorizations to provide EMS. The purpose of this paper was to assess the need for specific manpower authorizations for EMS services.

A literature review of the pertinent materials contained in the National Fire Academy Learning Resource Center, documents contained in the Royal Air Force Mildenhall Fire Department reference library, and information located on the Internet were used in an evaluative research effort to answer the following questions:

1. How is manpower earned for US Air Force fire departments?
2. What manpower authorizations do medical agencies receive for EMS response?
3. What training requirements must be met by firefighters who provide EMS response?

## BACKGROUND AND SIGNIFICANCE

United States Air Force (USAF) fire departments are basically reflections of fire organizations found throughout the United States. Some departments protect small communities, some protect large installations with major industrial bases and large flying operations, while others protect huge installations used for research, weapons storage and testing, and bombing ranges.

The policy of the Department of Defense (DoD) is, “The DoD components shall establish and maintain an installation fire and emergency services program, as an element of the overall DoD accident prevention program” (Department of Defense [DoD], 1994, p. 2). In 1991, the DoD and the USAF directed the adoption of all National Fire Protection Association (NFPA) standards. One of the primary NFPA standards to impact all fire departments was NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program* (1997). This standard became the foundation for all fire department operations and safety programs.

Public Law 104-113, section 12 (d), codifies Office of Management and Budget Circular A-119 requiring federal agencies to adopt and use standards developed by voluntary consensus standards bodies and to work closely with those organizations to ensure that the developed standards are consistent with agency needs (The National Technology Transfer and Advancement Act of 1995, 1996). In a proactive move to improve protection for USAF people and resources, Air Force Policy Directive 32-20: *Fire Protection* (1994), was written to guide fire protection policy within the USAF, prior to the enactment of The National Technology Transfer and Advancement Act of 1995. This directive says, “The Air Force will ensure its fire protection operations comply with

all applicable national, state, local, and Department of Defense (DoD) regulations, as well as National Fire Codes published by the National Fire Protection Association (NFPA)” (USAF, 1994, p. 1).

In the United States Air Forces Europe (USAFE), there are five installations classified as Main Operating Bases (MOBs) with large flying missions. These installations support structural firefighting as well as fighter and cargo aircraft missions, which include munitions storage and transportation, and the movement of large quantities of jet fuel. The MOBs have the largest populations within USAFE that require fire protection and rescue services. Consequently, they have the largest fire departments.

Because these fire departments are closely tied to advances in fire protection and safety propagated in the United States, and as a matter of compliance with public law (The National Technology Transfer and Advancement Act of 1995, 1996), they compare closely to United States civilian fire organizations. When new technology or services are propagated in the civilian sector, military fire departments soon begin providing similar services. This has been true for hazardous materials, more recently for weapons of mass destruction, and at an evermore-increasing rate, EMS. With EMS, military fire departments, like their civilian counterparts, are trying to cope with the increased service requests from the community while continuing to support the primary mission of firefighting.

This movement of EMS into fire protection has been going on for sometime. “Over the past two decades, the public has come to expect many more services from fire departments” (Dittmar, 1993, p. 47). It is estimated that 80 percent of all fire

departments provide some level of EMS, up from the estimated 73 percent in a 1981 study (Dittmar, 1993). There have been other issues that have migrated into the fire department too. Hazardous materials, confined space, fire prevention and public education are just some of the issues fire departments have tackled.

For many, firefighters providing EMS to the community was a logical step. “The movement of the fire service into EMS activities was a natural evolution of a long and proud tradition of serving the community in times of emergency” (Markman, 1984, p. 55). USAF fire departments have been providing rescue services to the community for over 25 years. Though the role was primarily the performance of rescue and then transfer to on-scene medical personnel for treatment and transportation, that role has evolved over the years into a more comprehensive service. Now USAF fire departments provide total BLS service in some cases, like at RAF Mildenhall. The firefighters there are the initial medical response agency for a community of 10,000, responding to and assessing injury or illness, then working with the medical treatment facility in transporting the patient for treatment. At this point, firefighters don’t provide transport services, but the future is uncertain.

Manpower is a major issue for many departments, especially USAF departments. For civilian fire departments, the taxpayer can and does provide the manning required for its local fire department to assume additional responsibilities, like EMS, through increased taxes, bond issues, and other ways of increasing income for the municipality. In the USAF, Air Force Manpower Standard (AFMS) 44EF: *Fire Protection Flight* (1996) dictates how much manpower is earned for a fire department based on specific job tasks.



The *Advanced Leadership Issues in Emergency Medical Services* course offered as part of the National Fire Academy Executive Fire Officer Program provided guidance for this applied research paper. The problem addressed by this research project related specifically to Module 1: Leadership. This phase of the course was designed to explore the requirements and challenges facing fire service and EMS leaders in providing the leadership necessary to meet the expanding needs of the community, and the emergency service worker.

## **LITERATURE REVIEW**

The literature review involved resources obtained from the National Fire Academy Learning Resource Center, NFPA standards, recurring periodicals such as *Fire Engineering*, and DoD Instructions, Manuals and Standards, some of which were found on the Internet.

To ensure a common understanding of terminology, some definitions are needed that will clarify the material contained in this document. NFPA 1500 (NFPA, 1997a) was used as the primary document in defining the following terms;

Emergency Medical Services. The provision of treatment-such as first aid, cardiopulmonary resuscitation, basic life support, advanced life support, and other pre-hospital procedures including ambulance transportation-to patients.

Risk Management. Identification and analysis of exposure to hazards, selection of appropriate risk management techniques to handle exposures, implementation of chosen techniques, and monitoring of results, with respect to the health and safety of members.

Authority Having Jurisdiction. The organization, office, or individual responsible for approving equipment, an installation, or a procedure.

Air Force Instruction 32-2001: *The Fire Protection Operations and Fire Prevention Program* (1999), describes the Authority Having Jurisdiction (AHJ) according to the type of situation being confronted;

For permanent deviations to NFPA standards, the Air Force Civil Engineer is the appropriate level of approval. For long-term deviations (more than 18-months), the major command civil engineer is the approval authority. For short-term deviations (less than 18-months), the installation commander is the AHJ (p. 3).

Sachs (1997) defines Basic Life Support (BLS) as involving, "...medical treatment not including invasive procedures or medication administration" (p. 110).

*The American Heritage Dictionary of the English Language, Third Edition* (1996), defines an EMT as "A person trained and certified to appraise and initiate the administration of emergency care for victims of trauma or acute illness before or during transportation of the victims to a health care facility via ambulance or aircraft."

Public Law 104-113, section 12 (d), codifies Office of Management and Budget Circular A-119 requiring federal agencies to adopt and use standards developed by voluntary consensus standards bodies and to work closely with those organizations to ensure that the developed standards are consistent with agency needs (The National Technology Transfer and Advancement Act of 1995, 1996). In a proactive move to improve protection for USAF people and resources, Air Force Policy Directive 32-20: *Fire Protection* (1994), was written to guide fire protection policy within the USAF, prior to the enactment of The National Technology Transfer and Advancement Act of 1995.

This directive says, “The Air Force will ensure its fire protection operations comply with all applicable national, state, local, and Department of Defense (DoD) regulations, as well as National Fire Codes published by the National Fire Protection Association (NFPA)” (USAF, 1994, p. 1).

NFPA 1500 (NFPA, 1997a) is a key document for every fire chief and has become the basis of fire department safety. Meyer (1992) observed that, “Opinions on NFPA 1500 vary, but as a nationally recognized standard, it cannot be ignored. It is a reference document to which any department will find itself compared in issues of litigation involving personnel protection” (p. 44).

Another key program for every fire chief is risk management. NFPA 1500 (NFPA, 1997a) is clear when it comes to risk management requirements for the safe operation of the fire department:

The fire department shall develop and adopt a comprehensive written risk management plan. The risk management plan shall consider all fire department policies and procedures...The risk management plan shall at least cover the risks associated with the following:...(f) Operations at emergency incidents... (section 2-2).

The components of a risk management plan include risk identification, risk evaluation, risk control and risk management monitoring (NFPA, 1997a).

NFPA 1500 (NFPA, 1997a) goes on further to say that members who perform emergency medical care shall be provided with emergency medical clothing that meets the applicable requirements of NFPA 1999, *Standard on Protective Clothing for Emergency Medical Operations* (1997) (section 5-5). NFPA 1999 (NFPA, 1997b),

“...was developed to address protective garments, gloves, and facewear designed to protect persons providing emergency medical care against exposure to liquid-borne pathogens during emergency medical operations” (p. 1).

It's important to also look at training requirements. NFPA 1500 (NFPA, 1997a) requires personnel who engage in emergency medical services to meet the training requirements of the authority having jurisdiction. AFI 32-2001 (USAF, 1999) requires the fire chief to, “Train and certify all firefighters involved in fire ground operations to the first aid first responder level and in American Red Cross or American Heart Association CPR” (p. 14). It goes on further to say, “...firefighters designated by the fire chief must be trained to the Emergency Medical Technician-Basic (EMT-B) level as defined in the 1994 Department of Transportation National Standard Curriculum” (p. 14).

The American Red Cross (ARC) is the primary agency used by USAF fire departments for medical training below the EMT level. Their Emergency Response program meets the requirement for the first aid first responder level training, and is designed to be taught in 53 hours (ARC, 1997).

The 1994 Department of Transportation (DOT) National Standard Curriculum specifies that the EMT-Basic course will “...be presented within a 110-hour training program” (DOT, 1995, p. iii). The refresher curriculum is an annual requirement and “...should consist of a minimum of 24 classroom hours” (DOT, 1996, p. ii).

As a supplement to AFI 32-2001 (USAF, 1999), USAFE has stipulated that each MOB must maintain a minimum of 20 firefighters certified to the EMT level (P. Pitrat, personal communication, October 21, 1999). This takes the decision about providing

EMS away from the fire chief and requires the fire chief to implement an EMT program to meet the USAFE requirements, whether EMS is provided by firefighters or not.

NFPA 1581, *Fire Department Infection Control Program* (1995), also has specific training requirements, and says, "The training program shall include proper use of personal protective equipment, standard operating procedures for safe work practices in infection control, proper methods of disposal of contaminated articles and medical waste, cleaning and decontamination, exposure management, and medical follow-up" (section 2-3.2).

"Over the past two decades, the public has come to expect many more services from fire departments" (Dittmar, 1993, p. 47). This is verified by Haase (1996) when he says, "One of the fastest growing aspects of fire department operations is primary response to emergency medical care requests" (p. 72). The reason for the move of EMS into the fire station seems to be obvious;

Fire departments were already geographically positioned and trained for rapid-response capability, and many had sponsored the rescue squads that were the forerunners of the new systems...it was recognized that one of the benefits of including EMS among fire department functions was that it also provided some level of medical support to its own members on the fire ground (Bogucki, 1996, p. B-36). But Haase (1996) says that the main reason EMS is being rendered by fire departments is to provide the public with prompt medical care in times of emergency.

These services also provide the community with more value for the tax dollars expended on their local fire service agencies. Dittmar (1993) explains how cost effective EMS in the fire station is when she says, "The public gets two services for the

price of one. Staffing and equipment are already available. Most fire stations already have in place the components-such as communications, dispatch, vehicle maintenance, training, rapid response, and personnel-needed for EMS..." (p. 51). But the public isn't the only one to benefit. "Many observers, in fact, credit the move into EMS with helping many fire departments to keep their fire suppression service viable" (Dittmar, 1993, p. 52). According to Sachs (1997), EMS is so important to fire departments today, "Each department should look at EMS as the most important service it provides" (p. 112).

Whatever the reason, it is estimated that 80 percent of all fire departments provide some level of EMS, up from the estimated 73 percent in a 1981 study (Dittmar, 1993). Today, "Only a handful of departments that make no EMS runs exist today" (Manning, 2000, p. 22).

"The movement of the fire service into EMS activities was a natural evolution of a long and proud tradition of serving the community in times of emergency" (Markman, 1984, p. 55).

"Boca Raton Fire Rescue has been the primary responder for medical emergencies in this oceanside community, which has a population of about 69,000, since July 1974" (Angier, 1997, p. 94).

The policy of the Department of Defense (DoD) is, "The DoD components shall establish and maintain an installation fire and emergency services program, as an element of the overall DoD accident prevention program" (DoD, 1994, p. 2).

Under the current trend of service, firefighters can expect to get only more involved in EMS in the future, and the picture of future EMS looks to be as "high-tech" as the rest of American life.

The health system of today...is transforming to focus on the early identification and modification of risk factors before illness or injury strikes....The EMS of the future will be community-based health management that is fully integrated with the overall health care system (Delbridge, et al., 1997, B-10).

In her article on future innovations in EMS, Stribling (1997) describes technologies that are either emerging on the market today or will be soon:

An IV is needed, but a good vein is hard to find. The EMT dons a pair of goggles looking something like those used for night vision or “seeing” through smoke. In fact, this device does use thermal imaging to allow the responder to “see” the victim’s subdermal veins (p. B-60).

The requirement for additional manpower to support EMS operations is clear. “The workload vastly increases when EMS functions are brought into a department. During 1982, for example, one major fire department responded to 2,621 structure calls and 81, 210 EMS calls...” (Dittmar, 1993, p. 49). In another example, “The Toledo Fire Department (as it was called then) recorded its first EMS runs in the early 1940s...In 1954, Toledo responded to 2,723 EMS runs” (Manning, 2000, p. 22).

In the USAF, AFMS 44EF is the manpower standard that dictates how much manpower is earned for a fire department based on specific job tasks (USAF, 1996). It says, “The Fire Protection Flight provides dedicated resources to fully protect life, resources, and the environment from the unfavorable outcomes of fire and natural and hazardous material disasters...” (p.1). A review of this standard found that the tasks included in the determination of manpower authorizations for each department were: emergency aircraft and rescue response; emergency intervention response; structural

emergency and rescue response; emergency hazardous material response; and fire prevention, education, and training programs (p. 4).

Arguably, the improvements in fire safety have made our facilities safer, and people are more aware of fire prevention techniques. The result has affected the movement of EMS into the fire service. “The decrease in the fire workload has left firefighters with more time between alarms for EMS activities” (Dittmar, 1993, p. 52). A review of RAF Mildenhall fire and EMS response experience in the first 6 months of 2000 supports this observation. During this period, the department responded to 2 fires and 55 medical emergencies, all classified as BLS responses (C. Groce, personal communication, June 6, 2000).

Looking deeper, 32 of the EMS responses (58 percent) required transportation to a medical treatment facility by hospital personnel. The remaining patients were either transported to the hospital by private means or treated and released. In a survey of 16 USAF fire departments in FY 97, the USAF found that there were 3,700 ambulance responses (C. Glover, personal communication, March 22, 1999). That translates to an average of 231 responses per installation. At the current rate and under the current conditions, RAF Mildenhall can expect to only have a total of 110 EMS responses, and of those only 64 will require an ambulance.



## PROCEDURES

### Methodology

A background paper produced by Headquarters (HQ) Air Force Civil Engineer Support Agency (AFCESA) was used to review a study conducted by the Air Force concerning medical support provided by fire departments in the Air Force. The focus of the paper was to report on results and recommendations provided by the reviewing agency, with input from HQ AFCESA regarding recommendations for EMS from within fire protection.

The literature review was also used. Sources of information from the National Fire Academy Learning Resource Center, the Internet, recurring periodicals, NFPA standards, and DoD instructions, manuals and standards were used in this effort. The review was undertaken to determine the reason for EMS moving into the fire service and the effect the added workload has on existing fire services. The objective was to identify the expanding requirements being placed on firefighters and suggest a possible adjustment to the current manpower requirements for US Air Force fire departments.

First, a review the USAF manpower standard was conducted to identify the tasks included in the fire protection process. That was followed by a review of national level standards to identify the training requirements for EMS. Next, an in-depth investigation into various periodicals, interviews, federal government standards, and USAF instructions was undertaken to identify other professional and regulatory opinions and guidance. Then, the background paper provided by HQ AFCESA was reviewed to assess the current levels of EMS being provided by a sampling of US Air Force fire

departments to get an overall picture of the current levels of service provided by firefighters.

The final step was to compare and contrast all of the standards and professional opinions to identify possible changes to the US Air Force manpower document.

### **Limitations**

Results contained in the background paper were limited to the sample of departments that were included in the study. There were no overseas fire departments included, which could have changed the overall outcome of the study because of the difference in operations found at overseas fire departments. Other fire departments, including those from other services, might have more extensive, or less demanding, responsibilities for EMS based on the mission of their installation.

## **RESULTS**

### **Answers to Research Questions**

#### **1. How is manpower earned for US Air Force fire departments?**

The manning for US Air Force fire departments is provided according to Air Force Manpower Standard 44EF: *Fire Protection Flight* (1996). The purpose of the standard is clearly stated in the opening paragraph;

This Air Force Manpower Standard (AFMS) quantifies the manpower required to accomplish the tasks described in the process oriented description for varying levels of workload. The Fire Protection Flight provides dedicated resources to fully protect life, resources, and the environment from the unfavorable outcomes of fire

and natural and hazardous material disasters, while ensuring mission continuity during war and peace (p. 1).

A review of AFMS 44EF (USAF, 1996) found that the tasks included in the determination of manpower authorizations for each department were: emergency aircraft and rescue response; emergency intervention response; structural emergency and rescue response; emergency hazardous material response; and fire prevention, education, and training programs. These tasks are then used to determine the total number of firefighters required at a particular base.

Included in the standard are positive and negative manpower variances for additional or reduced work requirements found at some bases (USAF, 1996). An example of a positive variance would be a base that must support flying operations at an auxiliary airfield. This base would receive an additional manpower authorization to cope with the increased workload caused as a result of flying operations at a location away from the main installation, an auxiliary airfield. The amount of additional manpower would be based on a variety of factors, including number of auxiliary airfields supported and airfield operation hours. A negative manpower variance would include bases that don't have flying operations.

The approved variances are;

- (1) Additional Structural Fire Fighting Pumper(s)
- (2) Additional Aircraft Rescue Fire Fighting (ARFF) Vehicle
- (3) Large-Frame Aircraft
- (4) Auxiliary Flying Fields
- (5) Geographically Separated Units (GSUs)

(6) Non-Flying Installations

(7) Fire Prevention Inspector Requirement (USAF, 1996, p. 19)

There is also a list of disallowed variances in the standard (USAF, 1996). Explaining this section of the standard, the USAF says;

The following variances were considered during the development of this AFMS, but, due to various reasons, were disallowed by the AF/CE, AF/PE, MAJCOM Integration Review Teams, or the Objective Flight Study Team. Therefore, they did not receive a special variance manpower allocation. Reasons for the decision were: resource limitations, work considered to be in the core or other variances, work normally contracted, work not the responsibility of the BCE, and work considered to be at a standard higher than an acceptable level (p. 19).

A review of the disallowed variances finds there are 26 “tasks” that were disallowed. Conspicuously missing from the list is EMS functions.

2. What manpower authorizations do medical agencies receive for EMS response?

USAF medical agencies now receive their manning based on the size of the community they support and the number of emergency responses they record over a specified period (M. Powell, personal communication, June 7, 2000). During emergency responses, two people staff USAF ambulances, the level of training dependant on the emergency situation (B. Greenlaw, personal communication, June 8, 2000).

The number of medical personnel that respond on an USAF ambulance corresponds to the standard for civilian ambulances. “Effective July 1, 1990, ambulances, when transporting patients, except for routine transfer of convalescent or other nonemergency

cases, shall be staffed by at least two persons, one of whom shall be an EMT, EMT-paramedic or health professional...” (Licensure standards, 1990). Another agency requires, “Two EMT-1s currently certified in the State of California” (Mountain-Valley EMS Agency, 1999). These examples reflect the national level requirements specified by the Commission on Accreditation of Medical Transport Systems (CAMTS), which states, “Basic life support missions require an additional EMT-B provider, for a minimum of two medical attendants, while a patient(s) is on board” (CAMTS, 1999).

### 3. What training requirements must be met by firefighters who provide EMS response?

NFPA 1500 (NFPA, 1997a) requires personnel who engage in emergency medical services to meet the training requirements of the authority having jurisdiction. AFI 32-2001 (USAF, 1999) requires the fire chief to, “Train and certify all firefighters involved in fire ground operations to the first aid first responder level and in American Red Cross or American Heart Association CPR” (p. 14). It goes on further to say, “...firefighters designated by the fire chief must be trained to the Emergency Medical Technician-Basic (EMT-B) level as defined in the 1994 Department of Transportation National Standard Curriculum” (p. 14).

The American Red Cross is the primary agency used by USAF fire departments for medical training below the EMT level. Their Emergency Response program meets the requirement for the first aid first responder level training, and is designed to be taught in 53 hours (ARC, 1997).

The 1994 Department of Transportation National Standard Curriculum specifies that the EMT-Basic course will “...be presented within a 110-hour training program” (DOT,

1995, p. iii). The refresher curriculum is an annual requirement and "...should consist of a minimum of 24 classroom hours" (DOT, 1996, p. ii).

NFPA 1581, *Fire Department Infection Control Program* (1995), also has specific training requirements, and says, "The training program shall include proper use of personal protective equipment, standard operating procedures for safe work practices in infection control, proper methods of disposal of contaminated articles and medical waste, cleaning and decontamination, exposure management, and medical follow-up" (section 2-3.2). The commercial training program "Silent War" is the primary training tool used to train USAF firefighters in infectious disease. This program is designed to be taught in 12.5 hours (Onguard, 1994).

NFPA 1500 (NFPA, 1997a) clearly requires a risk management plan for all department functions:

The fire department shall develop and adopt a comprehensive written risk management plan. The risk management plan shall consider all fire department policies and procedures...The risk management plan shall at least cover the risks associated with the following:...(e) Protective clothing and equipment, (f) Operations at emergency incidents... (section 2-2).

Firefighters must also be instructed in risk management to ensure their safety during emergency operations.

## DISCUSSION

In the civilian sector, EMS has been a part of fire department operations for decades. “The Toledo Fire Department (as it was called then) recorded its first EMS runs in the early 1940s” (Manning, 2000, p. 22). According to Manning, Toledo’s EMS activities grew until, “In 1954, Toledo responded to 2,723 EMS runs” (p. 22). Over time EMS has graduated into a service that has become more common within fire organizations. It took some departments longer, but most now provide some level of EMS. “An estimated 80 percent of the American fire service provides some level of emergency medical services (EMS) to their citizens through first responders, emergency medical technicians (EMTs), and paramedics” (Sachs, 1997, p. 110). One example is Boca Raton, Florida. “Boca Raton Fire Rescue has been the primary responder for medical emergencies in this oceanside community, which has a population of about 69,000, since July 1994” (Angier, 1997, p. 94).

How significant is EMS to fire department functions? “One of the fastest growing aspects of fire department operations is primary response to emergency medical care requests” (Haase, 1996, p. 72). But why are fire departments being tasked with EMS in the community? The reason for the move of EMS into the fire station seems to be obvious;

Fire departments were already geographically positioned and trained for rapid-response capability, and many had sponsored the rescue squads that were the forerunners of the new systems...it was recognized that one of the benefits of including EMS among fire department functions was that it also provided some level of medical support to its own members on the fire ground (Bogucki, 1996, p. B-36).

But Haase (1996) says that the main reason EMS is being rendered by fire departments is to provide the public with prompt medical care in times of emergency. This observation is supported by Markman (1984), who says, "The movement of the fire service into EMS activities was a natural evolution of a long and proud tradition of serving the community in times of emergency" (p. 55).

The fact that fire departments serve their community in times of emergency is not the only factor driving EMS into the fire service. Another factor is that these services also provide the community with more value for the tax dollars expended on their local fire service agencies (Haase, 1996). Dittmar (1993) explains how cost effective EMS in the fire station is when she says, "The public gets two services for the price of one. Staffing and equipment are already available. Most fire stations already have in place the components-such as communications, dispatch, vehicle maintenance, training, rapid response, and personnel-needed for EMS..." (p. 51).

In some ways, the movement of EMS into the fire service was a blessing. "Many observers, in fact, credit the move into EMS with helping many fire departments to keep their fire suppression service viable" (Dittmar, 1993, p. 52). Dittmar supported this change of focus when she observed that during 1982 one major fire department responded to 2,621 structure calls and 81, 210 EMS calls. This indicates that EMS is indeed the new focus for fire protection, and gives greater strength to Sachs' (1997) opinion that, "Each department should look at EMS as the most important service it provides" (p. 112).

Fiscal responsibility and concern for providing services in the most cost-effective manner possible are not restricted to the civilian community. The US Air Force is also



concerned with being good stewards of the taxpayer's money. As the military gets smaller, jobs are being consolidated and spread among other agencies that are determined to be capable of absorbing the tasks. This is where the inclusion of EMS into US Air Force fire departments is founded, noticeably similar to the movement of EMS into civilian fire departments.

However, in civilian communities manpower is provided by the taxpayers. If the budget for the community includes the staffing for EMS operations from within the fire department, then these services are funded for. In the US Air Force, Air Force Manpower Standard 44EF: *Fire Protection Flight* (1996) is the document that dictates how much manpower is earned for a fire department, based on specific job tasks. It says, "The Fire Protection Flight provides dedicated resources to fully protect life, resources, and the environment from the unfavorable outcomes of fire and natural and hazardous material disasters..." (USAF, 1996, p.1). A review of this standard found that the tasks included in the determination of manpower authorizations for each department were: emergency aircraft and rescue response; emergency intervention response; structural emergency and rescue response; emergency hazardous material response; and fire prevention, education, and training programs. These tasks are then used to determine the total number of firefighters required at a particular base.

Included in AFMS 44EF (USAF, 1996) are positive and negative manpower variances for additional or reduced work requirements found at some bases. An example of a positive variance would be a base that must support flying operations at an auxiliary airfield. This base would receive an additional manpower authorization to cope with the increased workload caused as a result of flying operations at a location

away from the main installation, an auxiliary airfield. The amount of additional manpower would be based on a variety of factors, including number of auxiliary airfields supported and airfield operation hours. A negative manpower variance would include bases that don't have flying operations.

The approved variances are;

- (1) Additional Structural Fire Fighting Pumper(s)
- (2) Additional Aircraft Rescue Fire Fighting (ARFF) Vehicle
- (3) Large-Frame Aircraft
- (4) Auxiliary Flying Fields
- (5) Geographically Separated Units (GSUs)
- (6) Non-Flying Installations
- (7) Fire Prevention Inspector Requirement (USAF, 1996, p. 19)

There is also a list of disallowed variances in the standard (USAF, 1996). Explaining this section of the standard, the USAF says;

The following variances were considered during the development of this AFMS, but, due to various reasons, were disallowed by the AF/CE, AF/PE, MAJCOM Integration Review Teams, or the Objective Flight Study Team. Therefore, they did not receive a special variance manpower allocation. Reasons for the decision were: resource limitations, work considered to be in the core or other variances, work normally contracted, work not the responsibility of the BCE, and work considered to be at a standard higher than an acceptable level (p. 19).

A review of the disallowed variances finds there are 26 "tasks" that were disallowed. Conspicuously missing from the list is EMS. Further investigation finds that EMS was

not considered as part of the “process,” which means that EMS wasn’t considered at any time during the writing of AFMS 44EF as a function of the fire department. The implied position of the writers of the standard is that EMS is not a fire department responsibility and no manpower authorizations are warranted. This is in direct conflict with the overall movement of EMS into the fire service within the United States, and with directions provided to the fire chief of USAF fire departments through USAF and DoD instructions.

So, there are no allowances for increasing manpower based on EMS responses. However, in keeping with the advancements in firefighting services in the civilian sector, and as a result of decreased staffing within the US Air Force as a whole, Air Force fire departments have been tasked to provide some level of EMS to their installations. According to AFI 32-2001: *The Fire Protection Operations and Fire Prevention Program* (1999), “The fire chief will establish and implement an effective fire protection and prevention program, including...initial emergency medical care...” (USAF, 1999, p. 3). This document further states, “Fire chiefs develop and implement management plans for the following areas and functions: ...emergency medical response...” (p. 4). It also requires emergency medical training to follow the requirements outlined in DoDI 6055.6-M-1: *DoD Standardized Emergency Medical Services Program (Draft)*.

In the United States Air Force in Europe (USAFE), fire departments must provide a specified number of certified EMTs to ensure at least one EMT is on-duty each shift for medical responses (P. Pitrat, personal communication, October 21, 1999). However, no manpower authorizations are provided for the increase in service. As a result, other emergency services and operations may be compromised so firefighters can provide

EMS. This requires the fire chief to implement Operational Risk Management (ORM) principles to strike a balance between the many services the fire department is tasked to provide.

Public Law 104-113, section 12 (d), codifies Office of Management and Budget Circular A-119 requiring federal agencies to adopt and use standards developed by voluntary consensus standards bodies and to work closely with those organizations to ensure that the developed standards are consistent with agency needs (The National Technology Transfer and Advancement Act of 1995, 1996). In a proactive move to improve protection for USAF people and resources, Air Force Policy Directive 32-20: *Fire Protection* (1994), was written to guide fire protection policy within the USAF, prior to the enactment of The National Technology Transfer and Advancement Act of 1995. This directive says, “The Air Force will ensure its fire protection operations comply with all applicable national, state, local, and Department of Defense (DoD) regulations, as well as National Fire Codes published by the National Fire Protection Association (NFPA)” (USAF, 1994, p. 1).

NFPA 1500 (NFPA, 1997a) is a key document for every fire chief. Meyer (1992) observed that, “Opinions on NFPA 1500 vary, but as a nationally recognized standard, it cannot be ignored. It is a reference document to which any department will find itself compared in issues of litigation involving personnel protection” (p. 44).

As the base document for firefighter safety, NFPA 1500 (NFPA, 1997a) refers to numerous other NFPA standards regarding safety issues from medical responses to protective clothing and equipment. Many of these documents set criteria for manufacturers to follow, then NFPA 1500 (NFPA, 1997a) requires the product to be

used. For example; NFPA 1999 (NFPA, 1997b), is a product standard. It outlines the requirements that must be met by manufacturers in the production of NFPA 1999 compliant protective clothing. NFPA 1500 (NFPA, 1997a) then applies the requirements of NFPA 1999 for EMS operations by saying:

Members who perform emergency medical care or are otherwise likely to be exposed to blood or other body fluids shall be provided with emergency medical garments, emergency medical face protection devices, and emergency medical gloves that meet the applicable requirements of NFPA 1999, *Standard on Protective Clothing for Emergency Medical Operations* (1997) (section 5-5).

NFPA 1999 (NFPA, 1997b), "...was developed to address protective garments, gloves, and facewear designed to protect persons providing emergency medical care against exposure to liquid-borne pathogens during emergency medical operations" (p. 1).

Another area of safety that is addressed by NFPA standards is risk management. In fact, risk management is mandated by NFPA 1500 (NFPA, 1997a), which says:

The fire department shall develop and adopt a comprehensive written risk management plan. The risk management plan shall consider all fire department policies and procedures...The risk management plan shall at least cover the risks associated with the following:...(f) Operations at emergency incidents... (section 2-2).

The components of a risk management plan include risk identification, risk evaluation, risk control and risk management monitoring (NFPA, 1997a).

What is risk management? NFPA 1500 (NFPA, 1997a) defines risk management as, “Identification and analysis of exposure to hazards, selection of appropriate risk management techniques to handle exposures, implementation of chosen techniques, and monitoring of results, with respect to the health and safety of members” (section 1-5). Within the USAF, there is a risk management program that has been developed to “...maximize combat capability...” (USAF, 1998, p. 4). This program is called Operational Risk Management (ORM) and it was developed to provide “...a process that will allow greater and more consistent results by using a systematic method rather than relying solely on experience” (p. 4). Its fundamental goal is to “...enhance mission effectiveness at all levels while preserving assets and safeguarding health and welfare” (p. 5).

ORM is defined as “...a logic-based, common sense approach to making calculated decisions on human, materiel, and environmental factors before, during, and after Air Force mission activities and operations...” (USAF, 1998, p. 1). It focuses on four key principles;

- (1) Accept no unnecessary risks.
- (2) Make risk decisions at the appropriate level.
- (3) Accept risks when benefits outweigh costs.
- (4) Integrate ORM into doctrine and planning at all levels (USAF, 1998).

Whatever risk management program is used, it must be acceptable to everyone that must use it. Chris Preu (1997) confirms this when he stated:

To be effective, the hazard assessments need to be conducted in a uniform manner and, at a minimum, in compliance with the Occupational Safety and Health

Administration (OSHA), Subpart I – Personal Protective Equipment, and NFPA 1500, Standard on Fire Department Occupational Safety and Health Program (p. 34).

Based all of this information, it's clear that US Air Force fire chiefs are placed in a position to make a risk assessment of their emergency operations every day. There is no manning provided for EMS responses (USAF, 1996), but fire chiefs are required to ensure at least one EMT is on duty daily to provide an EMS response when needed (P. Pitrat, personal communication, October 21, 1999). To ensure EMTs are trained appropriately, fire chiefs must develop training programs that meet the requirements of the 1994 Department of Transportation National Standard Curriculum and DoDI 6055.6-M-1: *DoD Standardized Emergency Medical Services Program (Draft)* (USAF, 1999). The EMTs that are on duty are assigned to other emergency response vehicles, such as engines, aircraft rescue and fire fighting (ARFF) vehicles, and rescue vehicles (USAF, 1996). The duties of these firefighters are focused on the type of vehicle they are assigned to. For example; at RAF Mildenhall, a firefighter assigned to an ARFF vehicle is primarily responsible for aircraft fire fighting operations. A firefighter assigned to the rescue vehicle is primarily responsible for rescue operations in such locations as aircraft and facilities. If these firefighters are the on duty EMTs and a medical emergency is received, they must respond to provide the care and treatment needed until arrival of medical personnel and transport capability. What happens if they are required at two separate emergency scenes?

Let me pose a possible situation. Firefighters respond to a heart attack victim and begin providing care, which could include CPR. Moments later, an aircraft crash occurs

with numerous casualties. These firefighters are not going to be able to perform both jobs simultaneously, so one of the emergencies is going to receive less than acceptable service. Which situation will it be? The fire chief must determine that based on risk management (NFPA, 1997a).

Statistics indicate that the risk is minimal because we are seeing fewer fires and more EMS emergencies. "The decrease in the fire workload has left firefighters with more time between alarms for EMS activities" (Dittmar, 1993, p. 52). Dittmar further supports this statement by saying, "The workload vastly increases when EMS functions are brought into a department. During 1982, for example, one major fire department responded to 2,621 structure calls and 81, 210 EMS calls..." (p. 49). A review of RAF Mildenhall fire and EMS response experience in the first 6 months of 2000 supports this observation. During this period, the department responded to 2 fires and 55 medical emergencies, all classified as BLS responses (C. Groce, personal communication, June 6, 2000).

Looking deeper, only 32 of those responses (58 percent) required transportation to a medical treatment facility by hospital personnel. The remaining patients' injuries were minor enough so they were either transported to the hospital by private means or treated and released. At the current rate and under the current conditions, RAF Mildenhall can expect to only have a total of 4 fires and 110 EMS responses. Of those EMS responses, only 64 are expected to require an ambulance.

Using those facts, a fire chief will have a difficult time selling the purpose of this paper; additional manpower is needed to support EMS operations. At RAF Mildenhall, firefighters do not respond to more fires than EMS calls and there are no incidents of



fires and EMS calls occurring simultaneously (C. Groce, personal communication, June 6, 2000). The situation at other fire departments may be different, so each fire chief must evaluate the data available and approach possible manpower increases accordingly.

## **RECOMMENDATIONS**

Fire chiefs should continue to challenge the decision not to include EMS response in the manpower standard. Even though there is no data to support the increase in manpower for RAF Mildenhall, there may be a US Air Force fire department that does have data to support such a need. Another approach that must be considered is the risk to the community. Do you provide decreased EMS response or fire response? Few communities will accept either one, especially if someone dies because response was delayed by another emergency. Is the risk to human life worth the monetary savings that could be achieved by not funding additional manpower? Or is saving one life worth the expense of additional personnel? A sound risk management program, such as the one developed by the USAF, will indicate that the possibility for death is higher by not providing for EMS with the necessary manpower, but the overall risk is minimal due to the reduced level of fire operations.

The provision for EMS staffing under the current manpower standard should be reevaluated. IF EMS response requirements are not sufficient enough to warrant additional manpower authorizations, possibly through positive mission variances, the manpower standard should reflect that EMS was considered and rejected by listing it as

a disallowed variance. If it is disallowed, AFI 32-2001: *The Fire Protection Operations and Fire Prevention Program* (1999), should be changed and not require fire chiefs to provide EMT training to firefighters.

Further study of this issue could be undertaken to better document how US Air Force fire departments are dealing with the EMS response and training requirement, and their application of risk management. Another area that should be addressed, but not evaluated in this research paper, is the provision of EMS when operating in contingency situations, such as a combat area, and during hazardous materials operations when firefighters are needed for entry and decontamination functions.

Firefighters are required to do much more than fight fires. It is vital that additional job tasks be supported with additional manpower authorizations to prevent overburdening of limited physical and human resources.

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